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| 10/607,591 | 06/27/2003 | Mark Ronald Plesko | 3382-64706 | 5996 |

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KLARQUIST SPARKMAN LLP
121 S.W. SALMON STREET
SUITE 1600
PORTLAND, OR 97204

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| EXAMINER |
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PHAM, CHRYSTINE

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| ART UNIT | PAPER NUMBER |
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2192

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 04/17/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/607,591

Applicant(s)

PLESKO ET AL.

Examiner

Chrystine Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-10,12-15 and 17-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-10,12-15 and 17-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 01/04/2007 & 02/13/2007.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is responsive to Amendments filed on January 4, 2007. Claims 1, 4, 6, 8-10, 12, 14, 15, 20, 23-26 have been amended. Claims 2, 11 and 16 have been canceled. Claims 30-32 are new. Claims 1, 3-10, 12-15, 17-32 are presented for examination.

Response to Arguments

2. Applicant's arguments with respect to new claim limitation, "... dropping type information ..." (recited in claim 30) have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3-8, 12-14, 17-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Knoblock et al. (US 6981249 B1, "Knoblock").

Claim 1

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Knoblock teaches a method of type-checking a code segment written in a programming language (see at least *type checking, compiler, interpreter* col.5:30-col.6:32)

comprising:

translating the code segment from the programming language to one or more representations of an intermediate language (see at least *intermediate program* col.1:63-col.2:52; *translator 204, source program 202, bytecode program 206, intermediate program 210* col.5:30-col.6:32; 402 FIG.4 & associated text); and type-checking the one or more representations based on a rule set (see at least FIG.12 & associated text; *constraints, type reconstruction* col.14:4-24), wherein the rule set comprises rules for type-checking a type designated as the unknown type (see at least *bytecode program 206 lacks some of the types, reconstruct, type inference, type elaboration* col.5:55-col.6:2), wherein the unknown type indicates that an element of the representation is of a type that is not known (see at least *unknown type, intermediate program* col.1:63-col.2:52; *type reconstruction, type variable, unknown type* col.8:4-19; FIG.4 & associated text).

Claim 3

The rejection of base claim 1 is incorporated. Knoblock further teaches wherein the rule set is selected from a plurality of rule sets (see at least *minimal solution, set of solutions* col.14:20-24; FIG.12 & associated text).

Claim 4

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The rejection of base claim 3 is incorporated. Knoblock further teaches wherein only a fraction of the plurality of rule sets contain rules for type-checking a type designated as the unknown type, wherein the unknown type indicates that an element of the representation is of a type that is not known (see at least *data member constraint 1202*, *data member 1204*, *unknown type* col.14:13-15).

Claim 5

The rejection of base claim 1 is incorporated. Knoblock further teaches wherein the rule set further comprises rules for type-checking types representing categories of types found in a plurality of programming languages (see at least *data member constraint 1202*, *data member 1204*, *unknown type*, *known type* col.14:13-15; FIG.12 & associated text);

Claim 6

Knoblock teaches a method of selectively retaining type information during compilation in a code segment written in a programming language (see at least *constructing 412* FIG.4 & associated text), the method comprising:

translating the code segment from the programming language to one or more representations of an intermediate language (see at least 402 FIG.4 & associated text); for each representation, determining whether to retain type information for one or more elements of the representation; and based on the determination, associating one or more elements of the representation with a type, designated as the unknown type,

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indicating the element can be of any type (see at least *type reconstruction, type variable, unknown type, solution, new type* col.8:4-55; FIG.4 & associated text).

Claim 7

The rejection of base claim 6 is incorporated. Knoblock further teaches wherein the determination is based on a current stage of compilation, a characteristic of each representation, or the programming language (see at least *type reconstruction, type variable, unknown type, solution, new type* col.8:4-55; FIG.4 & associated text).

Claim 8

The rejection of base claim 6 is incorporated. Claim recites limitations, which have been addressed in claims 2 and 4, therefore, is rejected for the same reasons as cited in claims 2 and 4.

Claim 12

Knoblock teaches a method of translating types associated with a plurality of programming languages to types of an intermediate language (see at least FIG.4 & associated text; *type reconstruction, type variable, local variable* col.8:4-55), the method comprising:

replacing the types associated with the plurality of programming languages with the types of the intermediate language, wherein the types of the intermediate language comprise general categories of the types associated with the plurality of programming

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languages and a type designated as an unknown type (see at least 502, 504 FIG.5 & associated text).

Claim 13

The rejection of base claim 12 is incorporated. Knoblock further teaches wherein the types of the intermediate language further comprise types related to programming language specific primitive types (see at least 414 FIG.4 & associated text; col.8:43-55).

Claims 14, 17-27

Claims recite limitations, which have been addressed in claims 1-7, 9 and 10, therefore, are rejected for the same reasons as cited in claims 1-7, 9 and 10.

Claim 28

Knoblock teaches a computer-readable medium containing computer-executable instructions for implementing the method of claim 24 (see at least FIGS.2A-2B & associated text).

Claim 29

Knoblock teaches a computer-readable medium containing computer-executable instructions for implementing the method of claim 1 (see at least FIGS.2A-2B & associated text).

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Claim 30

The rejection of base claim 1 is incorporated. Knoblock further teaches wherein the rule set further comprises rules for dropping type information for one or more elements of the representation by changing a known type of the one or more elements to the type designated as the unknown type (see at least _FIG.3B & associated text; *type, local variable, constraint collection, type reconstruction, type variable, unknown type* col.7:20-col.8:55).

Claim 31

The rejection of base claim 6 is incorporated. Claim recites limitations, which have been addressed in claim 30, therefore, is rejected for the same reasons as cited in claim 30.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 9, 10, 15 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knoblock et al. (US 6981249 B1, "Knoblock") in view of Franz et al. of record (US 7117488 B1, "Franz").

Claim 9

The rejection of base claim 6 is incorporated. Knoblock further teaches wherein the type, designated as the unknown type, indicating the element can be of any type (e.g., array)(see at least *type variable, unknown type, integer types, Booleans, bytes, shorts* col.8:4-47; *unknown array types* col.13:35-40). Knob does not expressly disclose said element (i.e., array) has size information associated with it. However, Franz teaches indicating an element can be of type array and has size information associated with it (see at least *array, size* col.11:63-col.12:11). Knoblock and Franz are analogous art because they are both directed to type checking. It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the teaching of Franz into that of Knoblock for the inclusion of size information associated with array types. And the motivation for doing so would have been enforce type safe code (see at least Franz col.1:55-col.2:55).

Claim 10

The rejection of base claim 9 is incorporated. Knoblock further disclose generating code from at least elements associated with the type, designated as the unknown type indicating the element can be of any type)(see at least *type variable, unknown type, integer types, Booleans, bytes, shorts* col.8:4-47; *unknown array types* col.13:35-40). Knoblock does not expressly disclose said indicating is based on the size information.

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However, indicating the element can be of any type based on the size information of a machine representation (see at least *array, size* col.11:63-col.12:11).

Claims 15 and 32

Claims recite limitations, which have been addressed in claim 10, therefore, therefore, are rejected for the same reasons as cited in claim 10.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chrystine Pham whose telephone number is 571-272-3702. The examiner can normally be reached on Mon-Fri, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

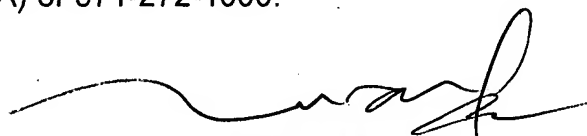
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Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Tuan Dam', is written over the printed name and title.

TUAN DAM
SUPERVISORY PATENT EXAMINER